(a) $\iint_R x^2 e^{xy}\, dA$

$R: 0 \le x \le 1, 0 \le y \le 1$

$\int_0^1 \int \text{¿¿}^2 e^{xy} \text{¿}\, dy dx \; \text{¿} \int_0^1 \text{¿¿}^{xy} \text{¿}\, dx$

We put Limits for Y from 0 to 1

$\int_0^1 \text{¿¿}^x - 1 \text{¿}\, dx$

$u = x \qquad du = dx$

$dv = e^x dx \qquad v = e^x$

$udv = uv - \int vdu = xe^x - \int e^x dx$

So we have $e - e - 1 - 1 = -2$